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## Genetic Counselling and the Psychiatric Profession

The persistent deepening of our knowledge of molecular genetics would surely have attracted ever-growing attention to the opportunities and problems of genetic counselling. This process has been accentuated by ~~sixties~~ two ~~sixties~~ well-publicized innovations of recent years: (1) the "discovery" that a preventable genetic disease, sickle-cell anemia was a significant health problem among Blacks, and (2) the development of procedures for prenatal diagnosis of certain metabolic and chromosomal defects. The legalization of early abortion has of course made it possible to couple prenatal diagnosis with preemptive termination of high risk pregnancies-- for the first time allowing the couple known to be carrying genetic disease the opportunity of looking forward to healthy children with high probability.

These developments have brought genetic counselling to the attention of the general public, at the same time as they have added new tools for medical prophylaxis. Genetics has been incorporated into the curriculum of most medical schools, and is an important part of the research and clinical care programs of departments of pediatrics and of medicine. It is no longer an arcane specialty at the fringes of the care-taking professions.

Many aspects of the new developments in genetics deserve the attention of psychiatrists-- roughly speaking, they could be classified into the genetic aspects of psychiatric disease, ~~and~~ <sup>a</sup> long established but strangely still controversial sector of psychiatric research, and the psychiatric (or even more broadly, psycho-social) aspects of genetic disease, and of the ~~diagn~~ diagnostic and therapeutic systems that have been developed in response thereto. At the May 1973 annual meeting of the Society, Dr. Michael Sperber (McLean Hospital, Belmont, Mass.) organized a panel

discussion of these interface issues -- the first reported occasion that the issues of genetic counselling have been brought before the American Psychiatric Association. Besides Dr. Sperber and myself, the discussants included Dr. Lissy Jarvik (University of California, Los Angeles), Professor Albert Moraczewski (theologian at Univ. of Texas Medical School), Dr. Margerie W. Shaw (geneticist and recent law graduate at Texas), Dr. Marc Lappe (Hastings Center for bioethical studies) and Dr. Norman Stoller ( ). Their reports covered the whole range of issues implied by their special backgrounds. They will be published in full elsewhere; and while I have been privileged of to draw upon their insights, the orientation and responsibility for the following remarks are my own.

During the past 25 years we have witnessed great strides in molecular genetics. It is difficult to convey the central intellectual issues, briefly, to specialists in other fields; we may then more persuasively refer to technical capabilities as a measure of scientific advance, even though these are byproducts more than the central aim of basic research. However, it is possible, for example, today to duplicate the DNA core of a virus with enzymatic procedures in vitro; and we are surely not many years from reports of synthesizing such viruses by completely artificial chemical procedures. Similarly, many illuminating reconstructions of DNA molecules can be effected in the laboratory -- and the altered DNA then shown to exhibit corresponding alterations in its biological activity as a genetic template within the cell.

However, there remains an enormous gap between our advanced knowledge of ultimate biochemical processes, and the ~~xxxx~~ details of the way they cooperate in a living system ~~ix~~ like the intelligent, adult human being. Notwithstanding the advances in molecular genetics we have only the most primitive methods for dealing with important

problems in the genetics of man. This is hardly to deny the central role of DNA for the genetic mechanism of all forms of life, men included. However, when we deal with such complex developmental phenomena as intelligence or emotional behavior, we really have very feeble instruments with which to separate the role of DNA-genetic from cultural-environmental influences on the development of the individual. Scanty experiments involving separated twins are hardly to be compared with the analysis of bacterial strains whose <sup>DNA</sup> ~~genetic~~ composition is precisely controlled, or even with strains of mice that have been subjected to many generations of rigorous inbreeding to assure their genetic homogeneity. We must be skeptical of a halo effect that may transfer the repute of molecular genetics to fields where it is ethically and technically impossible to make observations of comparable rigor.

For these reasons, I must insist on keeping an open mind on questions like the extent of heritability (relative role of DNA) on the development of intelligence or of psychopathology. The theoretical plausibility that these traits will show a substantial degree of genetic variation is no substitute for empirical verification, especially if socially disruptive and discriminatory policies might be among the practical consequences. There is little doubt that criminal deviance would be greatly diminished if the penalty for every criminal act were sterilization, but the true price of such a policy would be so high that it is inconceivable that it would be uniformly applied -- no more than we would ~~institute~~ <sup>revive</sup> universal <sup>universal</sup> the death penalty (potentially an equally effective means of assuring social conformity.)

Furthermore, one popular myth about genetic determination -- say about psychopathology -- needs to be quashed before we can sensibly discuss genetic components of disease: that is the myth of genetic fatalism or predestination.

This concept has been applied, especially viciously to discussions of racial variations in intelligence. It is difficult to discuss it without seeming to adopt a major premise which I bluntly reject, namely that the schooling difficulties of many black children can reliably be attributed to genetic deficiency. But it might blunt the passion with which racists adopt such a view, and liberals attack it (sometimes even to the extreme of seeking to inhibit research on the question) if the protagonists really understood what a thin thread they were tugging against. Whatever its genetic component, intelligence is self-evidently the resultant an extraordinarily complex developmental processes. Besides the familiar cultural factors, these surely also respond to matters like nutrition, virus infection, and specific patterns and timing of conceptual inputs. If we were to discover specific genetic factors relating to racial differences in intelligence -- which I must stress we do not know except for a few very rare syndromes -- it might even facilitate the finding of specific environmental factors with which they interact. Examples abound in closely related spheres-- from the use of thyroxin for hereditary goiter, to special training for the deaf-mute child (whose I.Q. otherwise would be measured at zero.)

To inhibit well-designed research in this difficult field would be self-defeatingly inhumane, much as we must decry premature and ill-founded fanaticisms.

Human genetic studies within a given race and sex are much less confounded by obvious environmental distortions; in this narrower context it is difficult to deny the plausible interpretation of many studies showing significant genetic involvement in intelligence, and to a lesser degree in psychopathology. The task now is to isolate the specific genetic-- and eventually biochemical-- factors

that mediate behavioral variability. The statistically compelling influence of an extra Y-chromosome, as discussed by Dr. Jarvik, is one of our best leads for objective study of genetic influence on sociopathic behavior-- even if the larger number of XYY males show no evident pathology. But with further refinement of biochemical analytical methods, for hormones, for neurotransmitters, for other regulators, it seems certain that still more cogent models will be discovered.

Workers in this field are sensitive to the very delicate problem of labelling, which is an obvious ethical hazard in dealing with human beings at risk, especially with the law. The propensity of police and prosecutors to brook no interference in the pursuit of their difficult and socially vital task poses serious problems in the protection of confidence in research data. Even in states where the psychiatric privilege is on the statute books, the privilege is far more fragile than that of, say, the attorney; and where non-psychiatrist professionals are necessarily involved we may foresee troublesome confrontations. Further research in these borderline fields may be seriously frustrated if psychiatrists do not succeed in enlightening the lawmakers about the costs of subpoenas and searches that override these confidences.